

SF-807

## ABSTRACT OF THE DISCLOSURE

A novel olefin polymerization catalyst is provided which comprises (A) a transition metal compound or lanthanoid compound  
5 containing two or more atoms selected from the group consisting of boron, nitrogen, oxygen, phosphorus, sulfur, and selenium; and (B) a Lewis acid. A process for producing an olefin polymer is also provided. The catalyst has a high olefin polymerization activity without a combined use of an expensive organoaluminum  
10 oxy-compound or organoboron compound, and can maintain the high activity for a long polymerization time.